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ABSTRACT

The development, norming, and validation of the Preschool Behavior Questionnaire (PBQ) are described. The questionnaire was developed to be a screening instrument for use by mental health professionals for the early detection of children's behavior problems. The scale was standardized on a group of preschoolers aged three to six, including male and female and black and white children. The PBQ is a modification of an English checklist with additional questions from a variety of sources. Significant differences were found between mean scores for 496 children from preschools for the general public and 102 preschoolers in programs specifically for emotionally disturbed children. A factor analysis of the 36 items yielded a three factor solution. The factors were labeled: (1) Hostile-Aggressive; (2) Anxious-Fearful; and (3) Hyperactive-Distractable. After analysis the questionnaire was shortened to 30 items. Males scored higher than females and blacks scored higher than whites. Administration and scoring are described and norms are given. It is recommended that any child scoring above the 90th percentile on the total or on any of the three subscores should be considered for further examination. (Author/CTM)

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MANUAL FOR THE PRESCHOOL BEHAVIOR QUESTIONNAIRE

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A more complete description of the process used to develop the questionnaire, and extensive analysis of the data used to validate it, has been published in an article, "A Behavior Rating Scale for the Preschool Child," which appeared in the journal, Developmental Psychology, Vol. 10, No. 5 (September 1974), pp. 601-610.

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Introduction to the PBQ

With so many three- to six-year-old children now enrolled in nursery schools, day care centers, and kindergartens, there is an increasing opportunity to screen children at an early age to detect developing behavior problems. While many child psychologists and other students of early childhood behavior have attempted to take advantage of this situation, they have found a lack of standardized instruments that aid in differentiating normal from deviant behavior. Many valuable checklists, rating scales, and other screening instruments are available for use with older children; however, those applicable to the preschool age range tend to be either standardized insufficiently or on a normal population only, or take too much time to allow for practical, widespread use.

The Preschool Behavior Questionnaire (PBQ) was developed as a screening instrument for easy use by mental health professionals as a first step in identifying preschoolers who show symptoms, or constellations of symptoms, that suggest the emergence of emotional problems. In considering criteria for the development of this scale, it seemed important that the instrument not only show validity in discriminating between normal and deviant populations, but also both inter-rater and test-retest reliability. To be applicable to all preschoolers, it seemed the scale should be standardized across a range of

preschoolers, aged three to six, male and female, black and white. Most importantly, the scale itself should be brief so that a professional could conveniently use it.

The PBQ is a modification of items in the Children's Behavior Questionnaire, a checklist standardized by Michael Rutter in England in 1967 for use with elementary school-aged boys.

Additional questions on the PBQ came from a variety of sources, including teachers in normal preschools and in preschools for emotionally disturbed children.

The reliability and validity of the newly designed scale was determined on a stated population in order to ensure that the scale would be useful to professionals, and free of the problems of other scales mentioned above. Since content or face validity seemed too subjective, the authors attempted to identify the criterion-related validity of the PBQ; that is, how precisely the PBQ could discriminate between a normal and deviant sample.

Sample

The normal sample of 496 children was chosen from five preschools in Durham, N.C., and two in Portland, Ore. Normal population was defined as children in any preschool that served the general public and that was not specifically intended for the care of autistic, emotionally disturbed, retarded, or otherwise special segments of the preschool population. Schools

were selected from various areas of the two cities so that the children represented socioeconomic groups ranging from lower- to upper middle-class. The sample, shown in Table 1, is roughly comparable to the general population of the two cities in terms of numbers of white and black as well as male and female children.

The deviant population was defined as those children who had been previously diagnosed as emotionally disturbed and who were enrolled in a treatment program specifically for emotionally disturbed preschool children. Again, retarded or autistic children were excluded. The emotionally disturbed sample was drawn from 15 preschools throughout the country that are involved in early intervention work with behavior-disturbed children. A sample of 102 preschoolers, whose primary diagnosis was emotional disturbance, was used in this study.

Teachers in both groups were asked to fill out the 36-item PBQ rating sheet on each child in their classes.

Results

Each item on the PBQ was scored by counting "Does not apply" as 0, "Sometimes applies" as 1, and "Frequently applies" as 2. The total for each subject was obtained by adding these scores. For the 496 children in the normal group, the resulting mean was 9.12, with a standard deviation of 7.67. For the 102 children in the deviant group the mean was 23.35, the standard deviation 7.30.

TABLE 1

SUBJECTS IN THE PBQ VALIDITY STUDY

ALL SUBJECTS (N = 598)*

Age in years	Normal (N = 496)						Deviant (N = 102)					
	Male (N =261)			Female (N =223)			Male (N = 71)			Female (N =27)		
	White	Black	Other	White	Black	Other	White	Black	Other	White	Black	Other
Total	N=207	N=50	N=3	N=155	N=66	N=1	N=47	N=14	N=0	N=16	N=7	N=2
3 (N=100)	46	8	2	27	5	1	3	1	-	3	1	-
4 (N=158)	55	7	1	56	13	-	10	5	-	3	-	1
5 (N=178)	63	9	-	41	20	-	22	7	-	5	3	1
6 (N=65)	22	4	-	14	4	-	12	1	-	5	3	-

*The sample of 598 includes 122 children on which information on age, race, and/or sex was not made available.

Validity

Each item and then the total scale score was analyzed using a chi square test to learn if teacher ratings of children significantly differentiated between normal and disturbed groups. Significance was defined as alpha level less than .01. Thirty-one of the 36 items differentiated significantly between the two groups. The overall scale differentiated beyond the .0001 level of significance between the children in normal preschools and children previously diagnosed as disturbed, with the disturbed children scoring higher. It appears that the PBQ demonstrates sufficient criterion validity.

Factor Analysis

To check on how many factors or independent dimensions are measured by the PBQ, a factor analysis was performed on the data, which yielded a three-factor solution. To illustrate what is measured by these factors, the items which show the highest loadings for each factor are listed in Table II.

Factor I appears to measure a Hostile-Aggressive dimension. The items loading highest here indicate lack of consideration for others, irritability, and fighting with peers.

Factor II includes such reactions as "fearful," "unhappy," "cries easily," and "stares into space"; it seems to be an Anxious-Fearful dimension.

In addition, the PBQ contained a third significant factor, which included items related to poor attention span and restlessness. This factor appears to measure Hyperactive-Distractable behaviors.

REVISION OF SCALE

Item Deletion

After completing major analyses on the standardization sample, the authors concluded that the PBQ could be shortened without significantly affecting the validity of the instrument. For inclusion in the shortened version, each item had to: differentiate significantly on the chi square test (which eliminated four questions), and rank in the highest 25 on

TABLE II

PBQ ITEMS WITH THE HIGHEST LOADINGS ON THE THREE FACTORS

VARIABLE	FACTORS I	II	III
FACTOR I: Highest Loadings			
Inconsiderate of Others	.78	.16	.16
Fights with Other Children	.77	-.03	.13
Destroys Own or Others' Belongings	.70	.12	.21
Bullies Other Children	.71	.00	.05
Kicks, Bites, Hits Other Children	.68	.08	.20
Doesn't Share Toys	.65	.24	.21
Blames Others	.64	-.03	.07
FACTOR II: Highest Loadings			
Tends to be Fearful or Afraid of New Things or New Situations	.06	.66	.14
Appears Miserable, Unhappy, Tearful, or Distressed	.19	.66	.06
Stares into Space	.04	.57	.37
Cries Easily	.24	.48	.14
Gives Up Easily	.16	.47	.40
FACTOR III: Highest Loadings			
Inattentive	.19	.24	.80
Has Poor Concentration or Short Attention Span	.12	.26	.80
Restless, Runs About or Jumps Up and Down, Doesn't Keep Still	.36	.02	.69
Squirming, Fidgety Child	.37	.09	.68

the stepwise multiple regression or have a factor loading higher than .55 on one of the three factors previously discussed (which eliminated two more questions).

To test how much information was lost from the original 36 items by deleting the six mentioned above, correlation between total score on long and short forms was computed. The result was a correlation coefficient of .990. The shortened PBQ appears to lose very little information, while cutting the rating time by as much as one-sixth.

With the deletion of the six items, a new set of totals is appropriate. The mean for the normal population becomes 8.007, with a standard deviation of 7.72. The mean for the deviant group becomes 21.324, with a standard deviation of 6.80.

Effects of Age, Race, Sex, and Group

In order to determine if there were any significant effects of age, race, sex or group, an analysis of variance was computed using the shortened PBQ. Males scored significantly higher than females (mean difference, 2.15 in the normal sample), and blacks scored significantly higher than whites (mean difference, 1.80). Age as a variable was not significant.

REPLICATION AND RELIABILITY STUDY

A second study was designed to replicate previous results and to determine reliability of the PBQ and the three factors isolated in the initial research.

Briefly, the results of this study were:

1. All three factors were found valid and reliable.

2. All previous results were replicated.

3. Teachers were found to be both more valid and more reliable raters of children than were aides.

4. Teachers who were in the classroom for at least six weeks, it was found, could more reliably use the PBQ--that is, they could make sounder judgments about the children. Thus, the rating scale was determined to be more accurate after the teachers got to know the children.

ADMINISTRATION OF THE PBQ

Completing and Scoring the PBQ

Directions for completing the PBQ are on the accompanying questionnaires. Scoring instructions follow the scale items.

Briefly, the teacher should:

1. Fill in the necessary data (name, sex, age of child, etc.).

2. Answer each question on the scale <u>as that question applies to that child</u>.

3. Turn to the scoring instructions.

The scoring system for the PBQ is as follows:
All items marked "Doesn't Apply" are scored "0"
All items marked "Applies Sometimes" are scored "1"
All items marked "Certainly Applies" are scored "2"
For each behavior, fill in the appropriate score in the column. If this blank has to its right a series of dots followed by a second blank, then also fill in that second blank with the subject's score on that item.

<u>Example</u>:
If a teacher were filling out a PBQ on a child who seemed to worry a great deal, was alone frequently (though not a <u>great deal</u> more than most), and who never got angry at other children, she might answer questions 6, 7, and 8 as follows:

Question:					
6. Is worried, worries about many things	___	___	X	2	2
7. Tends to do things on his own, rather solitary	___	X	___	1	
8. Irritable, quick to "fly off the handle"	X	___	___	0	0

4. Add the four columns of figures under "For Scorer's Use Only" and transfer these four totals to the four appropriately marked columns on the back of the questionnaire.

Interpreting Individual Preschoolers' PBQ Scores

Using the following table, the rater can readily determine the percentile rank of the child:

DISTRIBUTION OF SCORES ON THE PBQ

percentile rank	TOTAL behavior disturbed	Scale 1 hostile-aggressive	Scale 2 anxious	Scale 3 hyperactive-distractible	percentile rank
99	29	14	9	8	99
	26	11	8	7	
95	23	10	7	6	95
	20	9	6		
90	17	8	5	5	90
	15	7	4	4	
80	13	6 5			80
	11	4	3		
65	9	3 2	2	3	65
	7		1	2	
50	6	1			50
	4	0	0	1	
25	2			0	25
	1				
0	0				0

Interpretation of the PBQ for clinical purposes should be extremely conservative.

The PBQ is designed to be a short screening instrument. If it is used to "label" a child, then it is abused.

If a child scores in the upper 10 percent on the total scale (a score of 17 or above) this could be interpreted to mean, "This child's behavior is out of the ordinary; further examination and diagnosis may be warranted." The three scale scores simply point to more specific areas in which the child may be having trouble. Again, if the child scores above the nintieth percentile on one of the three scales, that points to a specific area that deserves attention.

It is important to combine the child's performance on the scale with the teacher's observations of the child's interaction with his peers and of his behavior in general over a period of several weeks. If he appears to have trouble getting along, it is wise for the teacher to share her observations and the results of the PBQ screening with the child's parents. The parents might want to seek professional help immediately, especially if they too are having difficulties with the child. Or, the parents might ask the teacher to seek consultation from a local practitioner or agency specializing in problems of preschool children for advice on 1) the management of the child at school; 2) whether or not a referral for further study is indicated; 3) if so, how to advise the parents on the referral process.

Some parents may not perceive that their child is having difficulties, or may wish to deny or ignore the problem. In tnese instances, the teacher might keep a daily log on the child, repeat the PBQ after three months, and reopen discussion with the parents if the child's difficulties persist. It also is frequently helpful to many families for the teacher to offer to

call in a consultant to provide additional information based on independent observations of the child.

Uses of the PBQ

As mentioned above, the PBQ provides sufficient information to be used as a screening instrument by professionals. Another valuable application of this instrument is to use it as a pre-post measure of children to indicate areas of change or growth during a given period (at least three months).

Because the PBQ focuses on negative characteristics, and thus may be misused to label children without providing appropriate referrals or treatment, it is not recommended for use by teachers or other child care workers who have not had special training in child psychology. Sale of the PBQ is restricted to mental health professionals.

Summary

Since the total score on the PBQ differentiated at the .0001 level of significance between normal and deviant groups, and since 53 percent of the total variance in the scale can be accounted for by this group difference, it appears that the PBQ is a valid and reliable instrument for use as a screening tool by mental health professionals who are reasonably familiar over a period of time with individual children. The factor analysis, which revealed three significant factors (Hostile-Agressive, Anxious-Fearful, and Hyperactive-Distractible) that appear repeatedly in studies of the preschool population, combined with replication and reliability data, tends to reinforce this conclusion.

THE PRESCHOOL BEHAVIOR QUESTIONNAIRE

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LINC Press
Learning Institute of North Carolina
Durham, N.C. 27701

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Child's Name _____ School Attending _____

Parents' Name _____ Sex (circle) M F

Address _____ (Street) Present Date Month ___ Day ___ Year ___

_____ (City, State, Zip Code) Child's Birthday ___ ___ ___

Rated by _____ Age of Child ___ ___ ___

Title of Rater _____

Length of Time Rater Has Worked with Child (months or weeks)

_____

Following is a series of descriptions of behavior often shown by preschoolers. After each statement are three columns, "Doesn't Apply," "Applies Sometimes," and "Certainly Applies." If the child shows the behavior described by the statement frequently or to a great degree, place an "X" in the space under "Certainly Applies." If the child shows behavior described by the statement to a lesser degree or less often, place an "X" in the space under "Applies Sometimes." If, as far as you are aware, the child does not show the behavior, place an "X" in the space under "Doesn't Apply."

Please put ONE "X" for EACH statement.

	Doesn't Apply	Applies Sometimes	Certainly Applies	For Scorer's Use Only			
1. Restless. Runs about or jumps up and down. Doesn't keep still	___	___	___	___	.....	.....	___
2. Squirmy, fidgety child	___	___	___	___	.....	.....	___
3. Destroys own or others' belongings	___	___	___	___	...	___	
4. Fights with other children	___	___	___	___	...	___	
5. Not much liked by other children	___	___	___	___	...	___	
6. Is worried. Worries about many things	___	___	___	___	.....	..	___

	Doesn't Apply	Applies Sometimes	Certainly Applies	For Scorer's Use Only			
7. Tends to do things on his own, rather solitary	___	___	___	___			
8. Irritable, quick to "fly off the handle"	___	___	___	___		___	
9. Appears miserable, unhappy, tearful, or distressed	___	___	___	___			___
10. Has twitches, mannerisms, or tics of the face and body	___	___	___	___			___
11. Bites nails or fingers	___	___	___	___			
12. Is disobedient	___	___	___	___		___	
13. Has poor concentration or short attention span	___	___	___	___			___
14. Tends to be fearful or afraid of new things or new situations	___	___	___	___			___
15. Fussy or over-particular child	___	___	___	___			___
16. Tells lies	___	___	___	___		___	
17. Has wet or soiled self this year	___	___	___	___			
18. Has stutter or stammer	___	___	___	___			
19. Has other speech difficulty	___	___	___	___			___
20. Bullies other children	___	___	___	___			
21. Inattentive	___	___	___	___			___
22. Doesn't share toys	___	___	___	___		___	
23. Cries easily	___	___	___	___			___
24. Blames others	___	___	___	___		___	
25. Gives up easily	___	___	___	___			___
26. Inconsiderate of others	___	___	___	___		___	
27. Unusual sexual behaviors	___	___	___	___			
28. Kicks, bites, or hits other children	___	___	___	___		___	
29. Stares into space	___	___	___	___			___
30. Do you consider this child to have behavior problems?	___	___	___	___			
TOTALS				Total	1	2	3

The scoring system for the PBQ is as follows:
All items marked "Doesn't Apply" are scored "0"
All items marked "Applies Sometimes" are scored "1"
All items marked "Certainly Applies" are scored "2"
For each behavior, fill in the appropriate score in the column. If this blank has to its right a series of dots followed by a second blank, then also fill in that second blank with the child's score on that item. Add all of the numbers in each of the four columns and transfer those totals to the following table. If the exact score appears on the table, circle it. If not, enter the exact score in the appropriate place and circle it.

percentile rank	TOTAL behavior disturbed	Scale 1 hostile-aggressive	Scale 2 anxious	Scale 3 hyperactive-distractible	percentile rank
99	29	14	9	8	99
	26	11	8	7	
			7		
95	23	10	6	6	95
		9			
	20	8	5		
90	17	7		5	90
		6	4	4	
	15	5			
80	13	4			80
		3	3		
	11				
65	9	2		3	65
			1		
50	7	1		2	50
	6	0	0	1	
	4			0	
25					25
	2				
	1				
0	0				0